

REMARKS

Favorable reconsideration of the above-identified application is requested in view of the following comments. Claims 1, 3-7, 9-13, 15-20 and 22-28 are pending, with Claims 1, 7, 13, 20 and 26-28 being independent.

Claims 1-3, 5-9, 11-15, 17-22, and 24-28 are rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over U.S. Patent No. 5,987,127, hereinafter *Ikenoue*, in view of U.S. Patent No. 6,243,480, hereinafter *Zhao*. Claims 4, 10, 16 and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Ikenoue* in view of *Zhao* and U.S. Patent No. 3,760,159, hereinafter *Davis*.

Claim 1 defines an image processing apparatus. A detecting unit detects all pieces of additional information that are embedded in image data. A storage unit stores the detected pieces of additional information in association with location information thereof. An analyzing unit analyzes the detected pieces of additional information and judges whether any of the detected pieces of additional information includes predetermined information that is updateable. The apparatus further includes an embedding unit that:

1) updates, when a judgment result of the analyzing unit is affirmative, the predetermined information included in the piece of additional information, and embeds the piece of additional information including the updated predetermined information into the image data at a location where the piece of additional information is originally embedded, by referring to the stored location information, and

2) embeds, when the judgment result of the analyzing unit is negative, a new piece of additional information including updated information into the image data at a

location that does not overlap locations where the detected pieces of additional information are embedded, by referring to the stored location information, the updated information being equivalent to the predetermined information.

Neither *Ikenoue* nor *Zhao* discloses that subject matter.

Ikenoue extracts additional information from inputted image data to separate the additional information from image data. In addition, newly generated additional information and additional information updated according to an analysis is then newly embedded in the pre-embedded image data. However, *Ikenoue* does not teach or suggest that when extracting additional information from the inputted image data, information concerning the location of the extracted information from the inputted image data is extracted and stored. Specifically, since *Ikenoue* does not extract and store location information concerning the additional information, when embedding additional information, *Ikenoue* teaches that a search is newly performed for a location having a density level that enables the additional data to be embedded, without considering the original location in which the extracted additional information was embedded. The location in which the additional information can be embedded is determined by searching either for a location in the image exhibiting no change in density or a location having a pre-determined density band in the case of half tones. See column 8, line 52 through column 9, line 3 of *Ikenoue*.

When lengthy additional information would be noticeable if embedded as is (column 7, lines 33-43), or when there is not a big enough area to embed all of the additional information (column 9, lines 4-13), *Ikenoue* divides the additional information into a plurality of blocks for embedding (column 16, lines 39-62). Marks showing the start and end of each block are added to respective blocks in order to

link the additional information divided into a plurality of blocks when it is extracted at a later stage. See column 16, line 67 through column 17, line 7. However, as disclosed in step S1307 of Figure 25 and at column 13, lines 4-26, the locations of the additional information are **deleted** after the additional information has been extracted.

The search for areas in which to newly embed additional information divided into blocks is also performed according to the density band of the image as disclosed in Figures 29 and 33, as well as in corresponding sections of the description. In other words, in the case of new or updated additional information being embedded in an image after the extraction of additional information from the inputted image data, *Ikenoue* searches once again for locations in which the additional information can be embedded according to the density distribution of the image.

The Examiner states that: "Ikenoue does not disclose expressly a storage unit that stores the detected pieces of additional information in association with location information thereof; that said updated predetermined information is embedded by referring to the stored location information; and that said embedding unit embeds the information at a location where said predetermined information is originally embedded." The Examiner relies on *Zhao* for a disclosure of that subject matter.

However, neither *Ikenoue* nor *Zhao* discloses a storage unit that stores the detected pieces of additional information in association with location information thereof, and embedding the detected pieces of additional information by referring to the stored location information, in combination with the other features in Claim 1.

The Examiner alleges that *Zhao* discloses a storage unit (figure 6(603)) that stores pieces of additional (watermark) information in association with location

information thereof (figure 8(619) and column 11, lines 49 – 63. See paragraph 1 on page 4 of the Official Action. However, the Examiner's interpretation of *Zhao* is incorrect. In *Zhao*, the active watermark 619 includes watermark information 603 and code 611. (column 11, lines 50 – 53). The watermark information 603 does not include location information. The watermark information 603 includes owner information 605, access information 607, and owner-defined information 609. (column 11, lines 50 – 53). The access information 607 is defined at column 11, line 63 through column 12, line 12.

The access information 607 does not include location information. In fact, no part of the active watermark 619 includes location information. If the Examiner persists with the rejection, the Examiner is respectfully requested to specifically point out where *Zhao* teaches the storage of *location* information.

Furthermore, *Zhao* also does not teach or suggest referencing any alleged location information and embedding new additional information at a location that does not overlap previously embedded additional information.

The Examiner further alleges that "Zhao further discloses embedding initial predetermined information (column 11, lines 58 – 62 of *Zhao*); updating said predetermined information (column 19, lines 26 – 31 of *Zhao*); and then embedding said updated predetermined information (column 19, lines 26 – 30 of *Zhao*) at a location where the said predetermined information is originally embedded (figure 6(619); figure 8(619); and column 11, lines 49 – 53 and lines 58 – 62 of *Zhao*). See paragraph 2 on page 4 of the Official Action. However, the Examiner has misinterpreted the alleged "embedding" function of *Zhao*.

Zhao defines an active watermark as a watermark that includes code.

Column 11, lines 33 – 44. *Zhao* describes a watermark agent 925 as a program that functions as a watermark monitor which uses a network to move from one node to another in search of watermarks of interest. Column 13, lines 55 – 61, and column 14, lines 8 - 9. The watermark agent does not need to travel, but can be incorporated as a permanent component of a system. Column 17, lines 11 – 13.

The network node 1001 includes, among other elements, an agent engine 1003, which provides the environment in which agent 925 executes its code and which is the entity to which the message containing agent 925 is addressed.

Column 15, lines 52 – 60. The agent engine 1003 extracts the agent 925 from a message and executes the code in the agent. Column 16, lines 6 – 11. The agent engine 1003 may be implemented as an integral part of an operating system.

Column 17, lines 28 – 32.

In column 19, *Zhao* discusses applications using active watermarks, e.g., monitoring the use of copyrighted material. At column 19, lines 26 – 31, it is described that the active watermark could increment a usage count maintained in the agent engine 1003 for a node each time it was printed and agent 925 could read the count on its visit to the node. Thus, it is not the watermark that is incremented or updated, it is the agent engine 1003 on the node 1001. The watermark does not include the agent engine.

Accordingly, the Office Action is clearly incorrect when it states that *Zhao* discloses embedding initial predetermined information; updating said predetermined information; and then embedding said updated predetermined information at a location where the said predetermined information is originally embedded. The

"embedding" referred to by the Office Action is the updating of the agent engine, not the watermark. Thus, *Zhao* does not disclose that for which it is relied upon, and it does not overcome the deficiencies of *Ikenoue*.

The subject matter relied on by the Examiner, *i.e.*, column 19, lines 26-31, is not at all directed to updating information that is then embedded in a watermark. Rather, it is directed to operating an agent to survey and count the number of times a watermarked document is used/displayed. In fact, nowhere in *Zhao* is it disclosed that a watermark includes updated embedded information as referred to in Claim 1.

Thus, *Zhao* teaches neither storing location information, nor updating a watermark.

For at least those reasons, the alleged combination of *Ikenoue* and *Zhao*, as proposed by the Examiner, does not disclose the combination of features defined by Claim 1, and Claim 1 is allowable.

Claims 7, 13, 20 and 26-28 are allowable for similar reasons as Claim 1 with regard to similar claim language.

Claims 3, 5, 6, 9, 11, 12, 15, 17-19, 22, 24 and 25 are allowable at least by virtue of their dependence from allowable independent claims.

Claims 4, 10, 16 and 23 are rejected as being unpatentable over *Ikenoue* in view of *Zhao* and further in view of U.S. Patent No. 5,987,127, hereinafter *Davis*. *Davis* does not overcome the deficiencies of the rejections of the independent claims from which Claims 4, 10, 16 and 23 depend. For at least that reason, they are allowable too.

Based on the above-observations, it is respectfully requested that all the rejections set forth be reconsidered and withdrawn. Should any questions arise in

connection with this application, or should the Examiner feel that a teleconference would be helpful in resolving any remaining issues pertaining to this application, the undersigned requests that he be contacted at the number indicated below.

Respectfully submitted,

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